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Center for Environmentally Threatened Communities Newsletter

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Aerial view of Napakiak, Alaska, with the school and school tank farm marked in the yellow box. Source: Native Village of Napakiak



Exterior of the Mertarvik Evacuation Center, where school will be held in fall 2019 in Mertarvik, Alaska. Source: Romy Cadiente



Head Start building in Chefnak, Alaska. Source: Native Village of Chefnak

Erosion Impacts to Schools

For the rural community of Napakiak, Alaska, it is a question of when, not if, rapid erosion will cause the Kuskokwim River to reach the Napakiak school. As of December 3rd, 2018, the school sits just 196 feet from the river bank. That's about half the length of a football field. More likely than not, the school will be impacted before a new building can be built in a safe location. If that happens, the school district will likely have to rely on temporary solutions such as using portable structures to ensure school services continue.

Napakiak is not the only community in the Yukon-Kuskokwim Delta whose school or educational buildings are threatened by harmful environmental trends. The school in Newtok, Alaska is expected to be impacted by erosion by 2022 and the community has been unable to secure funding to construct a new school in Mertarvik, a site 10 miles south across the Ninglick River where the entire community is relocating to due to aggressive erosion and permafrost degradation. When the first wave of approximately 120 residents moves to Mertarvik in fall 2019, approximately forty students will be attending school in Mertarvik, which will be temporarily housed in the Mertarvik Evacuation Center (MEC) before a full service school is constructed. Similarly, the Head Start buildings in Chefnak, which provide early childhood development services, are imminently threatened by flooding, erosion, and permafrost degradation. Although the building is owned by the Lower Kuskokwim School District and the Head Start services are funded by the Association of Village Council Presidents, the community is responsible for maintaining the building. With replacement as the only option, Chefnak has struggled to find funding to construct a new building in a safer location.

Permanent solutions to address Napakiak and Newtok's schools have been hard to come by. In order for a school district to receive funding to construct a new school, the district must first prioritize the projects in their service area, then apply to the State of Alaska for those projects, after which the state uses a formula to prioritize the projects statewide. Newtok and Napakiak sit at places six and seven respectively on that [list](#), with more than \$113 million worth of projects above them. Construction of a new school would cost an estimated \$36 million in Napakiak alone. Only the top projects across the state receive funding, while projects further down the

list can wait for years. Thus, when long term solutions for Newtok and Napakiak will come remains uncertain.

For more information on the erosion threatening the Napakiak school, read KYUK's story.

Recent Events

Emmonak Receives \$23 Million Grant for Roads and Port Facility



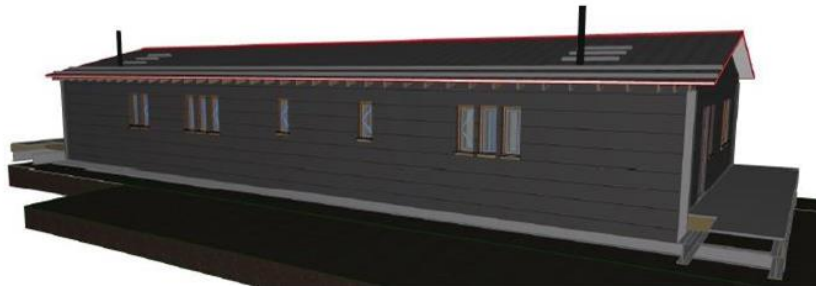
A \$23 million dollar grant to the City of Emmonak will repair and upgrade approximately 35 miles of roads and construct a permanent barge ramp and dock. Source: U.S. Department of Transportation

The City of Emmonak, Alaska has been awarded a \$23,168,722 Better Utilizing Investments to Leverage Development (BUILD) grant from the U.S. Department of Transportation to repair and upgrade approximately 35 miles of roads as well as construct a stable port and dock facility. The grant is one of the largest competitive grants ever awarded to a community in rural Alaska. Emmonak, located on the Kwiguk Pass of the Yukon River, experiences erosion and flooding issues that threaten community infrastructure. [A recently published report](#) by the State of Alaska Division of Geological and Geophysical Surveys concludes that erosion and channel migration have the potential to significantly impact community infrastructure. By providing a stable port and

dock facility, this project aims to mitigate the erosion threat by minimizing the exposure of the existing riverbank to further erosion.

Read about all awarded 2018 BUILD grants.

Newtok Awarded \$1 Million for Housing Construction in Mertarvik



A conceptual drawing of the design of the duplex that will be constructed in Mertarvik, Alaska, Newtok's relocation site, in 2020. Source: Cold Climate Housing Research Center

Newtok Village Council and Lower Kuskokwim School District received \$1 million in funding from Alaska Housing Finance Corporation to advance housing construction in Mertarvik, Newtok's relocation site, in 2020. The project will construct two state-of-the-art high energy performance duplexes with solar photovoltaic panels. The duplexes will be the first housing constructed specifically to serve professional populations including teachers, village public safety officers, and public health aides in Mertarvik. These grants address the greatest challenge in Newtok's relocation to Mertarvik – new housing construction. As part of efforts to enable Newtok's relocation to the Mertarvik site, Denali Commission is providing match funding for the award issued to Newtok Village Council.

Napakiak Finalizes 2018 Community Plan



A community planning meeting in Napakiak, Alaska in March 2018. Source: 2018 Napakiak Community Plan

Napakiak has finalized its 2018-2022 [Community Plan](#), which was developed by the residents and leadership of Napakiak with support from the State of Alaska Division of Community and Regional Affairs. The plan summarizes goals and priorities for the future of the community in seven areas: Land Use/Environment, Housing, Culture and Tradition, Economy, Public Facilities, Transportation, and Wellness and Safety. The plan also outlines Napakiak's goals and objectives to address the erosion and protect the sustainability of their community.

State of Alaska Releases Statewide Hazard Mitigation Plan



A structure at Elson Lagoon, Alaska, lost to the ocean due to usteq. Source: USGS

The 2018 update to the [Alaska State Hazard Mitigation Plan](#) has been released and includes updated information about the natural hazards Alaska faces, its vulnerabilities, and the state's mitigation strategy. The Alaska State Hazard Mitigation Plan is designed to reduce Alaska's vulnerability to disasters by reducing the damage and destruction caused by hazard events through mitigation. For the first time, the plan includes information on an accelerated and catastrophic form of permafrost thaw collapse called *usteq*, from the Yup'ik word meaning "surface caves in." Usteq occurs when frozen ground disintegrates under the compounding influences of thawing permafrost, flooding, and erosion. During usteq, permafrost thaw that was previously a slow, developing hazard becomes a high-impact disaster as the ground caves in and collapses.

Click here to contact CETC to feature a recent event in your community!



Solutions Spotlight

“I know we are a small community and sometimes that is a burden for us when it comes to funding, but we matter just as much as everyone else.” – Sophia Katchatag

Sophia Katchatag is the Community Coordinator in Shaktoolik, Alaska. Her position is funded by Denali Commission to lead the community's efforts to address environmental threats. Shaktoolik, with a population of 278 and located on the northern end of a sand spit, is among the most environmentally threatened communities in Alaska. It is especially vulnerable to erosion and flood inundation when strong fall storms hit. Sophia has worked with the Native Village of Shaktoolik as an Administrative Assistant since 2014 and

took on a new challenge last year by stepping into her current position. The biggest challenge for Sophia has been adjusting to her new position and learning from subject matter experts including scientists and engineers. Despite the challenges, she is motivated by the people around her including community members and staff at Denali Commission and Bristol Engineering who support her.

According to Sophia, Shaktoolik is in dire need of gathering more information on the environmental risks they will face in the future. That information would help the community make the incredibly difficult decision of if, and when, to relocate the community elsewhere. Even as environmental threats intensify, relocation is a very difficult topic for those who live in Shaktoolik because the location and its access to subsistence foods are critical for the community's lifestyle and culture.

Sophia hopes those outside her community try to put themselves in her shoes to understand that every fall many people in her community fear that the village will "get swiped away by the roaring ocean." Sophia says there will come a time when Shaktoolik will have to make the incredibly difficult decision about whether or not to relocate.

Community Profile: McGrath



Through the Emergency Watershed Protection (EWP) program, the Natural Resources Conservation Services (NRCS) assisted McGrath with an erosion protection project.

Problem:

McGrath is a rural community of 295 people on the Kuskokwim River in Interior Alaska. Despite its small size, it is an important economic and transportation hub in the region. McGrath has been classified as “Highly Vulnerable” in the Denali Commission Draft Statewide Threat Assessment, with erosion and flooding being the community’s greatest environmental threats. Erosion occurs along the entire Kuskokwim riverbank and threatens many emergency access roads, residences, commercial buildings, public buildings, and other infrastructure including the City water plant, powerhouse, fuel tank farm, and landfill. Accelerating erosion also exacerbates the risk of flooding for McGrath, which lies within the active floodplain of the Kuskokwim River and has a history of significant flooding.

Solution:

In 2015, the Natural Resources Conservation Service (NRCS) Emergency Watershed Protection (EWP) program assisted McGrath with the reconstruction of a protective levee along Takotna Avenue, where almost all community infrastructure is located, to prevent flooding and erosion. The project also armored the eroding riverbank with rock to protect the levee and other structures from future damage. In order to be funded, the project had to first undergo a benefit-cost analysis, which determined that the value of the benefit of the erosion protection in protecting community infrastructure was greater than the project cost. The next phase of the project will continue to mitigate riverine erosion by installing rock barbs, which slow and redirect the river current out into the main channel of the river away from the bank. To complete this stage of the project, the City of McGrath first requested assistance under the EWP program with a letter to the State’s Soil Conservationist in 2016 and as of January 2019, the project is in the preliminary stage of design.

According to city staff, completing a Multi-Jurisdictional Hazard Mitigation Plan, which was finalized in late 2018, has been extremely beneficial for the community in responding to environmental threats. The plan, a joint effort with the McGrath Native Village Council and the City of McGrath, outlines the community’s main

priorities and establishes a plan to mitigate erosion and flooding issues.

Current Funding Opportunities

State of Alaska Village Safe Water Infrastructure Protection Funding

Infrastructure Protection Funding is available from the State of Alaska Department of Environmental Conservation to communities that own and operate their water and sanitation systems with demonstrated capacity and cannot afford to address critical needs of their systems. The funding is available to address critical drinking water, waste water, and solid waste infrastructure issues. Applications are accepted on a rolling basis and are reviewed quarterly. Emergency funding may be considered upon verification of an emergency situation. For more information and for application documents, click [here](#).

Resources

Tips for Communities

What is a Term Contractor? For communities pursuing construction projects to advance community resilience, there are two options for soliciting engineering services: 1) Go through a procurement process for each individual project or 2) Enter into a contract with an engineering firm and use that firm for many tasks over a certain time period. The latter is called a term contract. Term contracts allow communities to select one engineering firm for professional planning, design, and construction management services. After entering into a term contract, all procurement requirements are satisfied and a community does not need to go through the procurement and solicitation process for every project. Denali Commission has supported five environmentally threatened communities in Alaska to establish term contracts.

Webinars

Why Conduct a Climate Change Vulnerability

Assessment? Institute for Tribal Environmental Professionals, Ohio University, and Desert Research Institute are presenting a webinar on January 28th at 9:30 am-10:45 am on the significance and benefits of conducting a climate change vulnerability assessment for Tribal communities. Presenters will share an overview of vulnerability assessments and provide practical examples. The webinar is free. Register [here](#).

News Roundup

[Channel Migration Study of Emmonak, Alaska](#): The rural village of Emmonak, Alaska, located on the Kwiguk Pass of the Yukon River, experiences erosion and flooding issues. This report, recently published by the State of Alaska Division of Geological and Geophysical Surveys, examines past trends and concludes that erosion and channel migration have the potential to significantly impact community infrastructure.

[Arctic Report Card Tracks Region's Environmental Changes](#): The National Oceanic and Atmospheric Administration's annual [Arctic Report Card](#), was released in December and showed that the Arctic region experienced many weather extremes in 2018 – warm air temperatures, low sea-ice coverage, and record low winter ice in the Bering Sea.

[Melting Permafrost Poses a Huge Danger to Arctic Infrastructure](#): Permafrost is found to some extent beneath nearly [85 percent of Alaska](#). As the air temperature warms, melting permafrost is proving to be a threat to infrastructure in Alaska and across the Arctic region. A [new study](#) shows that nearly four million people and 70 percent of current infrastructure will be affected by permafrost damage in the next 30 years.

[In 2018, Alaska's Bering Sea Was All Out of Whack](#): 2018 was an extreme year for Alaska's Bering Sea. For the first time since 1850, it remained virtually free of sea ice and waters were much warmer than usual. The warmer and ice free waters impacts wildlife and the human populations who rely on them.

[Helping Alaska Villages Turn the Tide on Disasters](#): The Stakes for Stakeholders project began three years ago to help Alaska villages equip themselves to accurately document the damage resulting from storms. The program now works with more than 20 Alaska villages, with support from the University of Alaska Fairbanks, the Alaska Division of Geological and Geophysical Survey's Coastal Hazards Program, and Alaska Sea Grant. For more information on this program, contact jacquelyn.overbeck@alaska.gov.

[Every \\$1 Invested in Disaster Mitigation Saves \\$6](#): The National Institute of Building Sciences released a finding that every dollar invested in disaster mitigation by three federal agencies (FEMA, EDA, and HUD) saves society six dollars.

Upcoming Events

The annual Alaska Forum on the Environment will be held February 11-15, 2019 in Anchorage, Alaska. The Forum is a statewide gathering of environmental professionals from government agencies, non-profit and for-profit businesses, community leaders, Alaskan youth, conservationists, researchers, and community elders. There will be presentations and workshops on topics such as building resilience to extreme events, climate change communication, and natural resource preservation. For more information, click [here](#). To register for the event, click [here](#).

About the Center for Environmentally Threatened Communities

The Center was established with a Denali Commission grant to the Alaska Native Tribal Health Consortium and supports rural Alaska communities experiencing infrastructure impacts associated with environmental threats such as flooding, erosion, and melting permafrost.

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